



IN THE MATTER OF European Patent
Application No. 1 112 433
by Halliburton Energy Services Inc.
and
IN THE MATTER OF an opposition thereto
by Smith International Inc.

FIRST AFFIDAVIT OF STEPHEN STEINKE

SWORN THIS 13th DAY OF October 2004

I, STEPHEN STEINKE, of 16740 Hardy Street, Houston, Texas 77032, United States of America, make oath and say as follows:

1. I am the Supervisor, Performance Analysis, which is part of the Reliability Engineering Group for Smith International Inc ("Smith"), which is the ultimate parent company of Smith International (North Sea) Limited. I make this affidavit in support of the Opposition Proceedings brought by Smith in the European Patent Office in respect of EP 1 117 433 (the "Opposition Proceedings").
2. The facts set out in this affidavit are from my own knowledge unless otherwise stated. I am duly authorized by Smith to make this affidavit in support of the Opposition Proceedings.
3. I have worked for Smith International Inc for approximately the past 20 years. Initially I worked as part of a team developing an internal database to record information about the various drill bits used to drill oil wells all over the world, referred to in this affidavit as the "Bit Record Database". From the creation of the Bit Record Database in 1985 until approximately 2001 I was responsible for supervising the entry of data onto the database and for performing quality control checks on that data. In 2001, primary responsibility for the operation and maintenance of the Bit Record Database passed to the Technical Services Group. Since then I have continued to be very much involved in the quality control aspects of maintaining the database.

4. As part of my work I also use a second internal database which tracks the progress of individual drill bits manufactured by Smith, from the point of manufacture to the point of sale. This database is known as the Bit Tracking System. It is a separate database from the Bit Record Database described in paragraph 3 above, and is maintained by the Customer Service, Sales and Bit Manufacturing Groups. The Bit Record Database contains a subset database of the Bit Tracking System that is updated through a nightly batch program. This allows programs in the Bit Record Database to create direct links between Smith serial number manufacture information stored in the Bit Tracking System and Smith bit performance information from the Bit Record Database. Both systems contain information about the date of manufacture, the engineering bill of material, and the shop production order, the plant of manufacture, the bit inventory location, and the current bit status.
5. I attach as Exhibits "SS-1" to "SS-6" the following documents:
 - a. Exhibit "SS-1": The Movement History Report, Additional Information Report and a screen shot of the sales information screen (the "F35 Sales Information") for the F35 Series Three Roller Cone Bit, Serial Number LE8671 (the "F35 Bit");
 - b. Exhibit "SS-2": The Bit Record for "State 4-24" well;
 - c. Exhibit "SS-3": The Standard Bit Record Report for "State 4-24" well;
 - d. Exhibit "SS-4": A Movement History Report, Additional Information Report and a screen shot of sales information screen (the "MF3DODGPD Sales Information") for the MF3DODGPD Series Three Cone Roller Cone Bit, serial number LJ8080 (the "MF3DODGPD Bit");
 - e. Exhibit "SS-5" the Bit Record for the "Helmcamp 1" well; and
 - f. Exhibit "SS-6" the Standard Bit Record Report for the "Helmcamp 1" well.

The Bit Tracking System

6. The Bit Tracking System tracks the progress of individual drill bits manufactured by Smith, from the point of manufacture to the point of sale. The purpose of the

database is to record exactly where a drill bit is at any point before it is sold. This helps Smith to monitor inventory levels in order to quickly respond to customer product requirements.

7. Upon manufacture, every bit is given a unique serial number which is then used to identify that particular bit throughout its life. The serial number of the bit is entered into the Bit Tracking System by Manufacturing and an individual database record is created for that bit. The database record is updated by the Customer Service or Sales Group when the bit changes location or status. The status of the bit is changed when the bit is transferred from one inventory location to another or, for example, when it is sold. Details of the status of a bit can be recalled from the database in a report known as the "Movement History Report". When a bit is sold details of the purchase, including the price, invoice date, and delivery ticket number are also recorded in the Bit Tracking System. This information can be reviewed in the database on the Sales Information screen. Once a bit has been sold, it remains on the Bit Tracking System and is no longer updated.

The Bit Record Database

8. The Bit Record Database holds information about the performance of many of the drill bits supplied and manufactured by Smith. The information has been collected from, and is primarily based on, wells drilled since 1984. The database also contains information on a very large number of competitor bits run during this same time period. The specific information recorded in the database includes details of when and where a particular bit was used and for how long. The database may also contain data about the condition of a drill bit following use. Information about the geographic location of the well drilled by a particular bit, the oil company for whom the well was drilled, the drilling contractor and rig that actually drilled the well, and the dates when the well was started and completed are also recorded.

Gathering the Information

9. Much of the information in the database has been gathered by members of the Smith sales team who regularly visit customer drill sites to monitor the status of the well and to record information about the drill bits used on the well. In my experience, it is standard practice for Smith salesman in the United States and

Canada to visit a rig site every few days during the drilling of a well. On each visit the salesman records which drill bits have been used to drill the well. In particular, the salesman records the type, size and serial number of each bit, the date or dates that it was used, the length of time that it was used for and the depth at which it was used. Sometimes, not all this information is available. He also records information about the operating parameters under which the bit was run and the dull condition of the bit once it has been pulled from the hole. Most bits are graded using the International Association of Drilling Contractors Dull Bit Grading System. This is an industry standard grading system that should be used to evaluate the dull condition of roller cone and fixed cutter bits. In some cases, the salesman relies upon the grading of the dull bit that was done by an employee of the operator or drilling contractor, while in other cases, the salesman grades the dull bit himself.

10. The salesman records all of the information described in paragraph 8 above on a document known as a "Bit Record". Prior to 1998, the completed Bit Record was sent to Smith's office in Houston, Texas, where the details were entered into the Bit Record Database. The data entry was carried out by data entry clerks working in the Reliability Engineering Group, and who reported to me. In 1998, the Smith International Bit Record Database went through a major update. At that time, individual stand-alone copies of the database were created and carried by the salesmen to the rig site. Salesmen were given the ability to enter Bit Record data on a stand-alone database, which could then be linked to the central database in Houston, in order to upload Bit Record information that they had entered.
11. In many areas of the USA, especially for offshore wells, Smith salesmen obtain Bit Records that were prepared entirely by non-Smith employees, directly from the operator or drilling contractor for the well. This is a common practice among all bit companies for wells drilled in remote, inaccessible locations. At that point, the salesman will either enter the data into his stand alone database, or send the Bit Record in to a central location for entry into the database. Most of the Bit Records collected by Smith from international locations are obtained directly from the operator or from the drilling contractor in this manner.

Using the Information

12. Each Bit Record in the database has a unique identification number known as the document number. Most of the Bit Records in the database have a section which contains a sequential listing of the bits used during the drilling operation of the well (the "Bit Runs"). The Bit Runs section of a Bit Record includes both Smith and competitor bit runs, and typically contains detailed information about the bit size, type, manufacturer, serial number, depth, footage drilled, hours run, operating parameters and dull condition of the bit when it is pulled from the hole. Every bit listed in the Bit Runs section of a Bit Record has a bit run number. Therefore, the details of the performance of every bit listed in the database can be uniquely identified by a combination of the document number given to the Bit Record and the bit run number.

13. The information captured in a Bit Record, including the Bit Runs discussed in paragraph 12 above, may be downloaded in a report known as a "Standard Bit Record Report".

Quality Control

14. All data entered into the Bit Record Database is subjected to a strict quality control procedure. Data entered into the database has to pass through a series of validation tables and validation ranges. These tables include checks to make sure that names are properly spelled for geographic areas, operators, contractors, rigs and other data fields. Bit manufacture company names and bit types are checked by large tables to ensure proper spelling. As Smith bits are entered into the Bit Record Database, the system is designed to check the serial number against the Serial Number file in the Bit Record Database to make sure that the size and type entered into the database matches the size and type on the Serial Number file.

15. Data entered into the Bit Record Database prior to the 1998 major database update was entered by a group of highly trained data entry operators. The high level of training was required because of the very complex and diverse nature of the data, combined with a wide variety of Bit Record forms that were received from our field offices. Most of the Bit Records were submitted on standard Smith International Bit Record forms, such as the one attached as exhibit "SS-2". However, many Bit Records came in printed on other forms that were in use by operators and contractors, primarily for the offshore USA and international locations. The data entry operators were trained to review, and make judgements

about the proper way to input, the data. If a question came up, they had access to people with field experience that could resolve the issue.

16. Some of the information on the Standard Bit Record Report, such as the one attached as exhibit "SS-6", is automatically calculated or generated during the data entry process. For example, the field for 'Lat/Long' is automatically calculated based on the input of other geographic information in the Well Header. The 'Bit No.' column of the Bit Run section is a counter that automatically increases every time a new bit or other downhole tool is added. The field for IADC code is automatically populated once the bit manufacturer and bit type are input onto the data entry screen. The 'ROP' field for rate of penetration is calculated once the values of footage and hours are input. The field for 'CUM HOURS' is automatically calculated every time a new line of bit run information is entered onto the bit record.
17. The data entry operators go through extensive training to understand oil well and drill bit terminology in order to better understand the complex nature of the data on the bit record form. They are trained to interpret that information in order to input the information into the correct data fields in the correct manner. For example, in exhibit "SS-5", for the first bit run, the 'JETS' field names shows a value of "3-15". This indicates that the first bit run of the well was equipped with 3 jet nozzles, each with a diameter of 15/32". There is no industry standard way of writing down the number of jet nozzles, so another salesman may record the same information as "15-3" or "15-15-15". The data entry operator must interpret the intention of the person who created the Bit Record and input the information into the correct data fields. The Bit Record form printed from the Smith Bit Record Database in exhibit "SS-6" shows the 'JETS' information for the first bit run as "15 x 3". In another example of data entry interpretation, for the bit run number 29 in Exhibit "SS-6", the data field called 'ROT' has been populated with the letter "M" indicating that the bit was run with a downhole tool known as a mud motor (this is the bit run for the MF3DODGPD Bit). If you look at the corresponding data row on the paper copy version of this bit record in exhibit "SS-5", the field called 'ROT TYP' is not populated. The ROT field is used to indicate that a downhole tool known as a mud motor, steerable system or turbine was run with the bit. The data entry operator observed that the data field called 'MTR RPM' was populated with a value of 100. Based on this observation, it was

apparent that the bit was run with a motor that was turning at a speed of 100 RPM, and therefore input a value of "M" into the 'ROT' field on the data entry screen. In one more case, the data fields for 'PRES', 'VOL' and 'WT', which are measures of the properties of the drilling fluid used on the well, require some degree of interpretation if the original paper copy bit record is not filled out with 100% clarity. In the case of the 'VOL' field for the MF3DODGPD Bit in Exhibit "SS-5", a value of 85 was entered on the paper copy form. The salesman did not indicate whether this was a measure of the SPM (strokes per minute), GPM (gallons per minute) or LPM (liters per minute). The data entry operator, based on training, knew that the only logical choice would be SPM, since typical values for GPM and LPM are much higher. The same logic would be applied to other fields related to the drilling fluids.

18. Validation ranges built into the numeric data fields of the database have been designed to catch some of the likely data entry errors. Occasionally, Bit Records are also audited for accuracy. In addition, large blocks of data are pulled from the database and are scrutinized for possible errors. If a likely error is found, it is researched and corrected if found to be in error.

The Sale and Use of the F35 Series Three Cone Roller Drill Bit (Serial Number LE8671)

19. I refer to Exhibit "SS-1" which is the Movement History Report and F35 Sales Information for the F35 Bit.
20. The Movement History Report records that manufacture of the F35 Bit was completed on 13 February 1996. This is represented by the status "Finished Good WIP" on the bottom line of the report. The F35 Sales Information records that the F35 Bit was then sold to Amerada Hess for \$5,790.00. The sale was invoiced on 31 March 1996 and the F35 Bit was delivered (under delivery ticket number 469736) to rig number 27 contracted by Amerada Hess and operated by ADCOR, on or about the same day. The F35 Sales Information also records the number of the well to be drilled with the F35 bit as "State 4-24" well. This well is located in McKenzie County, North Dakota USA. The salesman was reported as Dan Herring.

21. I refer to Exhibit "SS-2" which is the Bit Record for "State 4-24" well. This was completed by "Boone", which is the nickname for Dan "Boone" Herring on or about 26 April 1996. Entry 4 on the Bit Record shows that the F35 Bit was the fourth drill bit used to drill "State 4-24" well. The exact dates that the F35 bit was used were not recorded. However, the Bit Record shows that drilling commenced on or about 16 March 1996 and was completed on or about 26 April 1996. The F35 Bit was used for a total of 80 hours between those dates.

22. Exhibit "SS-3" is the Standard Bit Record Report for "State 4-24" well, as generated by the Bit Record Database. Entry 4 on the Standard Bit Record Report records the use of the F35 Bit. I note that Exhibit "SS-3" records the date that drilling commenced (the "SPUD" date) as 18 March 1996, while Exhibit "SS-2" records the Spud date as 16 March 1996. The SPUD date recorded in Exhibit "SS-3" is a typographical error. I am certain that the SPUD DATE recorded in Exhibit "SS-3" is a typographical error because the database entry was created by typing the information from either the original or a copy of the original hand-written Bit Record. The hand-written version shown in Exhibit "SS-2" shows a Spud Date of 3/16/96. The rest of the data on the Standard Bit Record Report in Exhibit "SS-3" corresponds with the data in the Bit Record in Exhibit "SS-2".

The Sale and Use of an MF3DODGPD Series Three Cone Roller Cone Bit (Serial Number LJ8080)



23. I refer to Exhibit "SS-4" which is the Movement History Report MF3DODGPD Sales Information for the MF3DODGPD Bit.

24. The Movement History Report records two separate "Finished Good WIP" dates for the manufacture of the MF3DODGPD Bit, namely 24 December 1996 and 30 December 1996. This is because the data entry operator has created 2 separate transactions when updating the status of the bit, one to move the bit out of one status and another to move into a new status. The actual date of manufacture of the MF3DODGPD bit was 24 December 1996, as can be seen from the Bit Tracking - Additional Information Report on page 2 of Exhibit "SS-4" which states "*WIP Completion Dt of 24-Dec-1996*". I have also reviewed the 10 consecutive serial numbers that were allocated before and after the number allocated to the MF3DODGPD Bit, since serial numbers are only allocated to a bit once manufacture is complete. The serial numbers that I reviewed all had a WIP

Completion date of 24-Dec-1996. The MF3DODGPD Sales Information records that the MF3DODGPD Bit was then sold to UMC Petroleum Co. for \$8,730.00. The sale was invoiced on 23 June 1997 and the MF3DODGPD bit was delivered (under delivery ticket number 492460) to UMC Petroleum Co., Nabors Drilling rig number 641 on or about 4 June 1997. The MF3DODGPD Sales Information also records the number of the well to be drilled with the MF3DODGPDBit as the "Helmcamp 1" well. This well is located in Leon County, Texas, USA. The salesman was reported as Ken Redfern.

25. I refer to Exhibit "SS-5" which is the Bit Record for the "Helmcamp 1" well. This was completed by Ken Redfern on or about 22 August 1997. Entry 28 on the Bit Record shows that the MF3DODGPD Bit was the twenty eighth drill bit used to drill the well. It was actually the 29th downhole tool used on the well, as a hole opener was run following the 25th bit run on the well. The exact dates that the MF3DODGPD Bit was used were not recorded. However, the Bit Record shows that drilling commenced on 24 March 1997 and was completed on 22 August 1997. The MF3DODGPD Bit was used for a total of 34.5 hours between those dates.

26. Exhibit "SS-6" is the Standard Bit Record Report for the "Helmcamp 1" well, as generated by the Bit Record Database. Entry 29 on the Standard Bit Record Report records the use of the MF3DODGPD Bit. The data on the Standard Bit Record Report set out in Exhibit "SS-6" corresponds with the data in the Bit Record set out in Exhibit "SS-5".

State of Texas

County of Harris

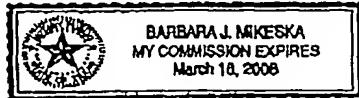
SUBSCRIBED AND SWORN TO before me, the undersigned Notary Public by Stephen Steinke, a person known to me, and who certified that he executed the foregoing instrument on this 13th day of October, 2004.



Notary Public, State of Texas

My Commission Expires: March 16, 2008

(SEAL OF NOTARY)



IN THE MATTER OF European Patent
Application No. 1 112 433
by Halliburton Energy Services Inc.
and
IN THE MATTER OF an opposition thereto
by Smith International Inc.

FIRST AFFIDAVIT
OF STEPHEN STEINKE
SWORN THIS 13th DAY
OF October 2004

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IN THE MATTER OF European Patent
Application No. 1 112 433
by Halliburton Energy Services Inc.
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IN THE MATTER OF an opposition thereto
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EXHIBIT "SS-1" TO THE FIRST AFFIDAVIT OF
STEPHEN STEINKE

This is the Exhibit "SS-1" referred to in the First Affidavit of Stephen Steinke
sworn this 13th day of October 2004

Smith International Inc.
 BIL Tracking - Movement History for LE8671

Serial #	Size/Type	Part #	District	Document	Features	Status	Trans Dt	Record Dt	Qty
LE8671	086.F35		1188	5080188		SOLD	3/31/1996	4/1/1996	5004
LE8671	086.F35		1188	469885		Consignment	3/1/1996	3/11/1996	5004
LE8671	086.F35		1188	202762		Onhand	2/23/1998	2/29/1998	5004
LE8671	086.F35		1188	202762		Intransit	2/20/1996	2/21/1998	5004
LE8671	086.F35		1408	HTMS		Onhand	2/14/1996	2/15/1995	5004
LE8671	086.F35		1409	HTMS		Intransit	2/14/1996	2/14/1996	5004
LE8671	086.F35		1408	HTMS		Onhand	2/14/1996	2/14/1996	5004
LE8671	086.F35		1409	21908		Intransit	2/14/1996	2/14/1996	5004
LE8671	086.F35		0402	A352720		Finished Good WIP	2/13/1998	2/13/1996	5004

Smith International Inc.
Bit Tracking - Additional Information for LE8671

Serial Number: LE8671

Part Number: 086.F35

Features:

Revision:

Engineering Run:

Parent Part Number 0013818

Wip Completion Dt: 13-Feb-1996

Run Work Number: 9552720

Status: SOLD

Subopt:

District: 1188 Williston

Mining Petro Code: P

Org: 5004

Nozzle Series:

Plant Code: P

Country Origin: USA

Element Name	Element Value
SIZE	086
TYPE	F35
ROOTNAME	
CLASS	011
FEATURES	
ENHANCED INSERTS	N
MOTOR BEARING	N
IADC	537X
ER NUMBER	
PATENT	
ENG STATUS	Active Bit
ORIGINAL ECO	

South Post - On Tracking

On Tracking - Movement History for LE0571

Stock/Line	Part #	Quantity	Document	Expiry	Status	Invoice D
000 F10		1100	5000166		SOLD	3/31/1996
000 F10	1100	463683			Consignment	3/31/1996
000 F10	1100	202762			Onhand	2/28/1996
000 F10	1100	202762			Initiated	2/28/1996
000 F10	1405	HTMS			Onhand	2/14/1996
000 F10	1405	HTMS			Initiated	2/14/1996
000 F10	1405	HTMS			Onhand	2/14/1996

Notes Information

Date Received: 01-Apr-1996

Sold To/Cons Name: AMERADA HESS -VENDOR 40004084

Ship To/Cons Name: AMERADA HESS -VENDOR 40004084

Sales Rep: HERRING, DAN

Inv/CM #: 5080166

Delivery Ticket #: 453736

Amount: \$5,700.00

Delivery Ticket Dt: 31-MAR-96

Lot #: STATE

Cust/Inv: AM0003

Cust/Inv: AM0003

Invoice Dt: 31-Mar-1996

Wt #: 4-24

Rig #: ADCOR 27

IN THE MATTER OF European Patent
Application No. 1 112 433
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EXHIBIT "SS-2" TO THE FIRST AFFIDAVIT OF
STEPHEN STEINKE

This is the Exhibit "SS-2" referred to in the First Affidavit of Stephen Steinke
sworn this 13th day of October 2004

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IN THE MATTER OF European Patent
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EXHIBIT "SS-3" TO THE FIRST AFFIDAVIT OF
STEPHEN STEINKE

This is the Exhibit "SS-3" referred to in the First Affidavit of Stephen Steinke
sworn this 13th day of October 2004



DANIEL HERRING

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IN THE MATTER OF European Patent
Application No. 1 112 433
by Halliburton Energy Services Inc.
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IN THE MATTER OF an opposition thereto
by Smith International Inc.

EXHIBIT "SS-4" TO THE FIRST AFFIDAVIT OF
STEPHEN STEINKE

This is the Exhibit "SS-4" referred to in the First Affidavit of Stephen Steinke
sworn this 13th day of October 2004

Smith International Inc.
Blt Tracking - Movement History for LJ8080

Serial#	Size/Type	Part#	Disctd	Document	Features	Status	Trans Dt	Recd Dt	Org
LJ8080	094.MF3DODGPD	0014010	1306	492460		SOLD	6/23/1997	6/23/1997	5004
LJ8080	094.MF3DODGPD	0014010	1306	3289		Onhand	6/9/1997	6/9/1997	5004
LJ8080	094.MF3DODGPD	0014010	1306	3299		Intransit	6/9/1997	6/9/1997	5004
LJ8080	094.MF3DODGPD	0014010	1306	3289		Intransit	6/3/1997	6/3/1997	5004
LJ8080	094.MF3DODGPD	0014010	1404	3299		Onhand	6/3/1997	6/3/1997	5004
LJ8080	094.MF3DODGPD	0014010	1404	2305		Onhand	2/13/1997	2/13/1997	5004
LJ8080	094.MF3DODGPD	0014010	2091	2305		Onhand	2/13/1997	2/13/1997	5004
LJ8080	094.MF3DODGPD	0014010	2091	25748		Onhand	1/3/1997	1/3/1997	5004
LJ8080	094.MF3DODGPD	0014010	2091	25748		InTransit	1/3/1997	1/3/1997	5004
LJ8080	094.MF3DODGPD	0014010	2091	25748		Intransit	12/30/1996	12/30/1996	5004
LJ8080	094.MF3DODGPD	0014010	0402	25748		Finished Good WIP	12/30/1996	12/30/1996	5004
LJ8080	094.MF3DODGPD	0014010	0402			Finished Good WIP	12/24/1996	12/24/1996	5004

Smith International Inc.
Bill Tracking - Additional Information for LJ8080

Serial Number: LJ8080

Part Number: 0014010

Features:

Revision:

Engineering Run:

Parent Part Number

Wip Completion Dt: 24-Dec-1998

Run Work Number: A423510

Status: SOLO

Subopt:

District: 1386 Tyler

Mining Petro Code: P

Org: 6004

Moze Series:

Plant Code: P

Country Origin: USA

Element Name	Element Value
SIZE	004
TYPE	MF30000PD
ROOTNAME	MF3D
CLASS	011
FEATURES	
ENHANCED INSERTS	Y
MOTOR BEARING	Y
IADC	537X
ER NUMBER	
PATENT	
ENO STATUS	Obsolete Product
ORIGINAL ECO	

Swain Tool - Oil Tracking

File Edit View Options Window Help

Oil Tracking - Movement History for LJB000

Serial	Size/Type	Part #	District	Document	Features	Status	Itc
LJB000	001 MF3000GPD	0014010	1306	492460		SOLD	6/2
LJB080	004 MF3000GPD	0014010	1306	3299		Onhand	6/
LJB080	004 MF3000GPD	0014010	1306	3299		Intermit	6/
LJB080	004 MF3000GPD	0014010	1306	3299		Intermit	6/
LJB080	004 MF3000GPD	0014010	1404	3299		Onhand	6/
LJB080	004 MF3000GPD	0014010	1404	2305		Onhand	2/1
LJB080	004 MF3000GPD	0014010	2091	2305		Onhand	2/1

Sales Information

Date Recorded: 6/23/1997

Sold To/Cust Name: U M C PETROLEUM CO Cust Name: UM0010

Ship To/Cust Name: HARBORS DRILLING USA INC-USE ACCOUNT NA0002 Cust Name: NA0027

Sales Rep: REDFEARN K Inv/CMB: 6132020 Invoice Dt: 6/23/1997

Delivery Ticket #: 492460 Amount: \$8,730.00 Well #: 1

Delivery Ticket Dt: 04-JUN-97 Lease #: HELMCAMP Rig #: 641

IN THE MATTER OF European Patent
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EXHIBIT "SS-5" TO THE FIRST AFFIDAVIT OF
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